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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,236	10/03/2003	You-Hua Chou	N1085-00134	2013
8933	7590	11/22/2004	TSMC2002-104	
DUANE MORRIS, LLP IP DEPARTMENT ONE LIBERTY PLACE PHILADELPHIA, PA 19103-7396			EXAMINER THOMAS, ERIC W	
			ART UNIT 2831	PAPER NUMBER

DATE MAILED: 11/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/678,236

Applicant(s)

CHOU ET AL.

Examiner

Eric W Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-9 and 12-22 is/are rejected.
- 7) ☒ Claim(s) 2-3, 10-11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## INTRODUCTION

The examiner acknowledges, as recommended in the MPEP, the applicant's submission of the amendment dated 8/20/04. At this point, claims 1, 3, 9, 11, 18, 20 have been amended; and claim 22 has been added. Thus claims 1-22 are pending in the instant application.

## DETAILED ACTION

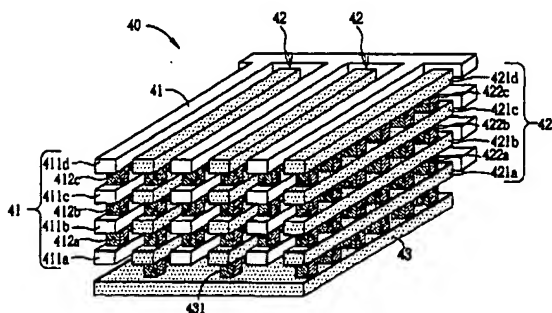
### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 5-9, 13-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Hu et al. (US 2004/0036143).



Hu et al. disclose in fig. 5, a capacitor comprising a non-segmented electrically conductive plate (43), an electrically conductive segmented plate defining at least two

electrically conductive plate segments (411a, 421a) disposed over the non-segmented electrically conductive plates, a first capacitor dielectric (not shown) disposed between the non-segmented electrically conductive plate and the segmented electrically conductive plate; at least one electrically conductive interconnect (431) coupling one of the at least two plate segments to the non-segmented electrically conductive plate; and a second capacitor dielectric (not shown) disposed between the at least two plate segments.

Regarding claim 5, Hu et al. disclose the at least two plate segments form a lateral capacitor.

Regarding claim 6, Hu et al. disclose the at least one electrically conductive interconnect (431) extends through the first capacitor dielectric.

Regarding claim 7, Hu et al. disclose the plate and one of the at least two plate segments are each of a first electrical bias, and the other one of the at least two plate segments is of a second electrical bias opposite to the first electrical bias (as suggested in paragraph 2, 4).

Regarding claim 8, Hu et al. disclose the capacitor comprises a metal-insulator-metal capacitor.

Regarding claim 9, Hu et al. disclose in fig. 5, a capacitor comprising a non-segmented electrically conductive plate (43), an electrically conductive segmented plate defining a first plurality of electrically conductive plate segments (411a) and a second plurality of electrically conductive plate segments (421a), the first and second plurality of electrically conductive plate segment disposed over the non-segmented electrically

conductive plate; a first capacitor dielectric (not shown) disposed between the non-segmented electrically conductive plate and the segmented electrically conductive plate; at least one electrically conductive interconnect (431) coupling each of the plate segments of one of the first and second plurality of plate segments to the non-segmented electrically conductive plate; and a second capacitor dielectric (not shown) disposed between the plate segments.

Regarding claim 13, Hu et al. disclose the first and second plurality of plate segments form lateral capacitors.

Regarding claim 14, Hu et al. disclose the first plurality of plate segments alternate with the second plurality of plate segments.

Regarding claim 15, Hu et al. disclose the at least one electrically conductive interconnect (431) extends through the first capacitor dielectric.

Regarding claim 16, Hu et al. disclose the plate and one of the first and second plurality of plate segments are each of a first electrical bias, and the other one of the first and second plurality of plate segments is of a second electrical bias opposite to the first electrical bias (as suggested in paragraph 2, 4).

Regarding claim 17, Hu et al. disclose the capacitor comprises a metal-insulator-metal capacitor.

Regarding claim 18, Hu et al. disclose a method of fabricating a capacitor, comprising: forming a non-segmented electrically conductive plate (43); forming a first capacitor dielectric over the non-segmented electrically conductive plate (not shown); forming at least one via (431) in the first capacitor dielectric; forming an electrically

conductive segmented plate (411a, 421a) over the first capacitor dielectric, the segmented electrically conductive plate defining at least two electrically segments, the at least one via electrically coupling one of the at least two plate segments to the non-segmented electrically conductive plate; and forming a second dielectric between the at least two plate segments (not shown).

Regarding claim 19, Hu et al. discloses the capacitor comprises a metal-insulator-metal capacitor.

Regarding claim 20, Hu et al. disclose a method of fabricating a capacitor, comprising: forming a non-segmented electrically conductive plate (43); forming a first capacitor dielectric (not shown) over the non-segmented electrically conductive plate; forming a plurality of vias (431) in the first capacitor dielectric; forming an electrically conductive segmented plate (411a, 421a) over the first capacitor dielectric, the segmented electrically conductive plate defining a first plurality of electrically conductive plate segments and a second plurality of electrically conductive plate segments, the vias electrically coupling the conductive plate segments of one of the first and second plurality of plate segments to the non-segmented electrically conductive plate; and forming a second capacitor dielectric between the plate segments (not shown).

Regarding claim 21, Hu et al. discloses the capacitor comprises a metal-insulator-metal capacitor.

Regarding claim 22, Hu et al. disclose an electrically conductive plate (43); an electrically conductive segmented plate (411a) defining at least two electrically conductive plate segments (411a) disposed over the electrically conductive plate; a first

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capacitor dielectric (not shown) disposed between the electrically conductive plate and the segmented electrically conductive plate; at least one electrically conductive interconnect (431) coupling one of the at least two plate segments to the electrically conductive plate; and a second capacitor dielectric disposed between the at least two plate segments and extending perpendicular to the first capacitor dielectric.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 4, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu et al. (US 2004/0036143) in view of Ng et al. (US 5,583,359).

Regarding claims 4 and 12, Hu et al. disclose the claimed invention except for the second dielectric has a high dielectric constant (col. 9 lines 3-15).

Ng et al. teach the use of a high dielectric constant material formed between a segmented electrically conductive plate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select a material having high dielectric constant and dielectric strength as taught by Ng et al., since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

#### ***Allowable Subject Matter***

6. Claims 2-3 and 10-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach or fairly suggest (taken in combination with the other claimed features) a capacitor wherein one of the at least two electrically conductive plate segments is thinner than the other one (claims 2-3); and wherein the one of the first and second plurality plate segments are thinner than the plate segments of the other one (claims 10-11).

#### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1, 4-9, 12-22 have been considered but are moot in view of the new ground(s) of rejection.



***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

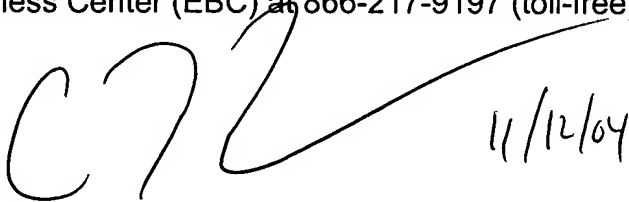
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric W Thomas whose telephone number is 571-272-1985. The examiner can normally be reached on M,Tu,Sat 9 am - 9:30 pm; W, Th, F 6 pm -10:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A large, stylized handwritten signature in black ink, appearing to read 'C72' followed by a long horizontal stroke.

11/12/04

Eric W Thomas  
Examiner  
Art Unit 2831

ewt